

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT
GULF OF MEXICO REGION

ACCIDENT INVESTIGATION REPORT

For Public Release

1. OCCURRED

DATE: 12-NOV-2019 TIME: 1200 HOURS

2. OPERATOR: **Murphy Exploration & Production C**
REPRESENTATIVE:
TELEPHONE:
CONTRACTOR:
REPRESENTATIVE:
TELEPHONE:

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING
- DAMAGED/DISABLED SAFETY SYS. SCSSV
- INCIDENT >\$25K
- H2S/15MIN./20PPM
- REQUIRED MUSTER
- SHUTDOWN FROM GAS RELEASE
- OTHER

3. OPERATOR/CONTRACTOR REPRESENTATIVE/SUPERVISOR
ON SITE AT TIME OF INCIDENT:

4. LEASE: **G32303**
AREA: **MC** LATITUDE:
BLOCK: **208** LONGITUDE:

5. PLATFORM:
RIG NAME:

8. OPERATION:

- PRODUCTION
- DRILLING
- WORKOVER
- COMPLETION
- HELICOPTER
- MOTOR VESSEL
- PIPELINE SEGMENT NO.
- OTHER

6. ACTIVITY: EXPLORATION(POE)
 DEVELOPMENT/PRODUCTION
(DOCD/POD)

9. CAUSE:

7. TYPE:

INJURIES:

- HISTORIC INJURY
- OPERATOR
- CONTRACTOR
- REQUIRED EVACUATION
- LTA (1-3 days)
- LTA (>3 days)
- RW/JT (1-3 days)
- RW/JT (>3 days)
- FATALITY
- Other Injury

- EQUIPMENT FAILURE
- HUMAN ERROR
- EXTERNAL DAMAGE
- SLIP/TRIP/FALL
- WEATHER RELATED
- LEAK
- UPSET H2O TREATING
- OVERBOARD DRILLING FLUID
- OTHER _____

- POLLUTION
- FIRE
- EXPLOSION

- LWC
- HISTORIC BLOWOUT
 - UNDERGROUND
 - SURFACE
 - DEVERTER
 - SURFACE EQUIPMENT FAILURE OR PROCEDURES

- 10. WATER DEPTH: **4653** FT.
- 11. DISTANCE FROM SHORE: **48** MI.
- 12. WIND DIRECTION:
SPEED: M.P.H.
- 13. CURRENT DIRECTION:
SPEED: M.P.H.
- 14. SEA STATE: FT.
- 15. PICTURES TAKEN:
- 16. STATEMENT TAKEN:

COLLISION HISTORIC >\$25K <=\$25K

On 12 November 2019, at 1200 hours, a loss of communication to Mississippi Canyon (MC) 208 (Seafloor location) Subsea (SS) 001 OCS-G 32303 (Bottom hole location at SS 209), occurred at the Murphy Exploration & Production Company's MC 254 A Delta House platform. This resulted in a catastrophic failure of the satellite umbilical cobra head termination on the MC 208/209 SS001 well side of the Niedermeyer satellite umbilical. Although the failure resulted in the unintentional release of hydraulic fluid, the amount was not above the EPA's pollution reporting requirement. The loss of communication initiated a fail-safe shutdown sequence that successfully shut in associated wells.

Sequence of Events:

From 12 November 2020 to 13 November 2020, the MC 254 A (Delta House) facility experienced a catastrophic failure of the satellite umbilical cobra head termination on the MC 208/209 SS001 well side the Niedermeyer satellite umbilical. One High Pressure (HP) and two Low Pressure (LP) hydraulic supply lines ruptured during the event.

On 15 November 2019, a Remote Operated Vehicle (ROV) inspected the subsea system verifying a catastrophic failure on the cobra head by observing a hydraulic fluid leak coming from the cobra head on the MC 208/209 well's tree, with three broken hydraulic supply lines HP2, LP1 and LP2. It was determined that the discharged amount of hydraulic control fluid was under 1,000 gallons, which is below the EPA's threshold for reportable pollution of 1,356 gallons. Additionally, no sheen was observed on the surface as a result of this incident.

On 18 November 2019, an independent vessel disconnected the satellite umbilical cobra heads on both the MC 253 Umbilical Termination Head (UTH) and the MC 208/209 well's tree. The umbilicals were then wet-parked on the seabed.

On 20 January 2020, an independent vessel recovered the satellite umbilical on a reel and offloaded it in Alabama for further investigation and removal of the cobra heads. Once the reel was offloaded and the cobra heads removed, cracked tubing was discovered.

BSEE Investigation:

On 20 December 2019, one Bureau of Safety and Environmental Enforcement (BSEE) New Orleans District (NOD) Accident Investigator arrived on the MC 254 A (Delta House) facility to conduct interviews and obtain trends and documents on MC 208/209 Well SS001 pertaining to the investigation.

On 21 January 2020, a team consisting of one BSEE NOD Accident Investigator and two BSEE Regional Pipeline Section Engineers conducted a follow-up investigation in Theodore Alabama. The BSEE team interviewed multiple personnel, took photographs, and collected documents.

Conclusion:

BSEE agrees with the following conclusions from Murphy's root cause analysis:

1. Heavy weight and center of gravity offset from the UTH assembly resulted in high shear and bending moment on the Multi Quick Connect (MQC) plate beyond its reported capacity. The main failure mode was the collapse of the bolts on the MQC bracket. Sheared bolts were present on both ends of the umbilical. Also, numerous cracked welds and missing interface blocks were discovered on the MC 208/209 well's tree end.

2. Temporary buoyancy modules that were used during original installation of the satellite umbilical were left on the cobra heads to avoid high loads on the MQC plate. Since the rigging used for temporary buoyancy modules was not meant for long term subsea use, it failed on the MC 208/209 well's tree end which caused additional load transferring on the MQC plate resulting in additional failures and leaks of the MC 208/209 well's tree end.

3. The Electrical Flying Lead (EFL) being grounded to the UTH may have accelerated the consumption of anodes on adjacent structures.

18. LIST THE PROBABLE CAUSE(S) OF ACCIDENT:

- Equipment Failure - Flawed equipment design: Heavy weight and center of gravity offset from the UTH assembly resulted in high shear and bending moment on the MQC plate beyond its reported capacity.

19. LIST THE CONTRIBUTING CAUSE(S) OF ACCIDENT:

- Equipment Failure - Flawed equipment design: The buoyancy modules used were not intended for long term use. The EFLs being grounded to the UTH may have accelerated the consumption of anodes on adjacent structures.

20. LIST THE ADDITIONAL INFORMATION:

Dates of Onsite Investigations:
 12-20-2019 (Offshore)
 01-21-2020 (Onshore Ship Yard)

21. PROPERTY DAMAGED: NATURE OF DAMAGE:

ESTIMATED AMOUNT (TOTAL): \$5,750,000

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

The BSEE New Orleans District makes no recommendations to the Office of Incident Investigation.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: NO

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

25. DATE OF ONSITE INVESTIGATION:

20-DEC-2019

28. ACCIDENT CLASSIFICATION:

26. INVESTIGATION TEAM MEMBERS:

**Pierre Lanoix (AI Specialist) / Phillip
Smith (Pipeline Engineer) / David
Trocquet Jr. (Pipeline Engineer) /**

27. OPERATOR REPORT ON FILE: **YES**

29. ACCIDENT INVESTIGATION

PANEL FORMED: **NO**

OCS REPORT:

30. DISTRICT SUPERVISOR:

David Trocquet

APPROVED

DATE: **15-SEP-2020**